Space Weather Forecast

Issued on Tuesday, 22 November 2022 at 12:49 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Daily Slight Chance of R1/R2 radio blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low in the past 24 hours, with the largest X-ray flare of the period a common-class flare at 22/0727 UTC. This flare emanated from a relatively new and developing sunspot region. The other two regions on the disk appear stable
No new Earth directed Coronal Mass Ejections (CMEs) were seen in available imagery, though we are waiting for more imagery from this morning's C7 flare.

Solar Wind / Geomagnetic Activity: The solar wind eased to background levels. The number of particles was average and their associated magnetic field were weak. The north-south component of the field was variable and also weak. This resulted in Quiet geomagnetic activity comfortably below Minor Geomagnetic Storm G1.
Energetic Particles / Solar Radiation: No solar radiation storms were detected.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain low, with a daily slight chance of isolated moderate-class X-ray flares.
Solar Wind / Geomagnetic Activity: There is one CME in the forecast that may glance Earth between days one and two, Tuesday 22 and Wednesday 23 November. This is the large 'filament lift-off' (arc of plasma leaving the Sun) from 19 November.
The current solar wind is expected to remain at background levels through day one and two (22nd/23rd), perhaps interrupted by the above mentioned CME before a new fast wind potentially arrives on day three, Thursday 24 November.
The upshot of the above forecast is a daily slight chance of Minor Geomagnetic Storm G1 on days one to three (22nd to 24th), probably falling to quiet on Friday 25 November, with this late quieter interlude of low confidence.
Energetic Particles / Solar Radiation: No solar radiation storms are expected given the dearth of significant sunspot regions on the Sun at present.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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